

AMENDMENTS TO THE SPECIFICATION

Please replace the title with the following rewritten title:

-- CONTROL OF LEACHABLE MERCURY IN MERCURY VAPOR DISCHARGE LAMPS --

Please replace Paragraph 0009 with the following rewritten paragraph:

-- The present invention provides a mercury vapor discharge lamp comprising an effective amount of a silver salt compound, a gold salt compound or combination thereof. --

Please replace Paragraph 0010 with the following rewritten paragraph:

-- The present invention further provides a method for preventing the formation of leachable mercury compounds in mercury vapor discharge lamps comprising providing in the lamp structure an effective amount of a silver salt compound, a gold salt compound or combination thereof. --

Please replace Paragraph 0011 with the following rewritten paragraph:

-- The incorporation of a silver salt compound, a gold salt compound, or combination thereof has been found to have a significant effect on preventing mercury compounds from leaching during the TCLP test. Accordingly, the formation and dissolution of soluble ferric and cuprous ions from the mercury vapor arc discharge lamp components is diminished or prevented resulting in reduction or prevention of leachable mercury compounds. --

Please replace Paragraph 0014 with the following rewritten paragraph:

-- Suitable silver salt compounds include, for example, silver carbonate, silver halides, silver oxide, silver sulfide, silver acetate, or combinations thereof. Suitable gold salt compounds, include, for example, gold carbonate, gold halide, gold oxide, gold sulfide, gold acetate, or combinations thereof. Typically, silver carbonate is used in the present invention.

Please replace Paragraph 0015 with the following rewritten paragraph:

-- To prevent the spurious formation of leachable mercury upon disposal of mercury vapor discharge lamps and to improve the reliability of the TCLP test, an effective amount of a silver salt compound, gold salt compound, or combination thereof is incorporated in the lamp structure, for example within the glass envelope exterior to the plasma discharge, in an end-cap, or in the base of the lamp. An effective amount of the silver salt compound, gold salt compound, or combination thereof is that amount which will substantially prevent the interaction of elemental mercury with ferric and cuprous compounds that can oxidize elemental mercury to a soluble form. In general, an effective amount of the silver salt compound, gold salt compound, or combination thereof will be enough for the TCLP test results to show the presence of less than about 0.2 parts per million of leachable mercury per lamp. Typically, the silver salt compound, gold salt compound, or combination thereof is present in a range between about 0.1 milligrams and about 10 grams per lamp, and more typically, in a range between about 10 milligrams and about 30 milligrams per lamp. --

Please replace Paragraph 0016 with the following rewritten paragraph:

-- The silver salt compound, gold salt compound, or combination thereof is typically incorporated in the basing cement of the lamp that holds the aluminum cap to the leaded glass portion of the end of the lamp. The basing cement generally comprises about 80 weight % marble flour (limestone-CaO), and the balance shellac a phenolic resin binder, a solvent for blending, and a dye used to color the cement. The cement is dispensed through a feeder into the base and heated to cure once assembled with the lamp. The curing drives off the solvent and solidifies the cement. The silver salt compound, gold salt compound, or combination thereof is blended with the cement components and incorporated into a lamp manually or by automated manufacturing equipment. The silver salt compound, gold salt compound, or combination thereof is released only when the lamp is destroyed or crushed in preparation for TCLP testing. In this method, the silver salt compound, gold salt compound, or combination thereof is always exterior to the positive column of the lamp. The positive column is a typically under vacuum and is a portion of the lamp that includes the interior of the stem press (inner leads and cathode) which is filled with phosphor and inert gases that fill the lamp. Inert gases that fill the lamp typically include argon and krypton. By incorporating the silver carbonate, gold carbonate, or combination thereof

within the basin basing cement of the end cap, no separate dispensing step to introduce the silver salt compound, gold salt compound, or combination thereof is necessary. --

Please replace Paragraph 0017 with the following rewritten paragraph:

-- The silver salt compound, gold salt compound, or combination thereof can also be formulated into a thermally curable adhesive or binding composition which is soluble in acidic aqueous solutions. Such compositions generally include an inert filler material, a binder such a polyvinymethacrylate, and a processing solvent such as denatured alcohol. The alcohol will evaporate and the composition will cure when the basing cement is cured. These ingredients are similar to the usual components of basing cements used to secure the glass envelope to the aluminum base or end cap. Gums and gelatins have also been used as such adhesives and binders. The nature of the gums and gelatins is that they adhere to surfaces when heated. The composition containing the antioxidant material can be placed on the inner surface of the aluminum end cap as a ring or discrete button. When the lamp is crushed and exposed to an aqueous environment or placed in the TCLP solution, the aqueous soluble binder allows the silver salt compound, gold salt compound, or combination thereof to be released quickly. --

Please replace Paragraph 0019 with the following rewritten paragraph:

-- The silver salt compound, gold salt compound, or combination thereof can also be incorporated in the lamp by encapsulation of the material in a glass capsule that can be placed either in the base of the lamp between the aluminum cap and flare of leaded glass, or placed within the positive column of the lamp. Since the silver salt compound, gold salt compound, or combination thereof is enclosed in a glass capsule, it could be present in the inside of the positive column of the lamp without affecting lamp function. --

Please replace Paragraph 0023 with the following rewritten paragraph:

-- Varying amounts of silver carbonate were added to the TCLP test to determine the effectiveness of the silver salt on reducing the amount of leachable mercury formed during the TCLP test. The data in Table 1 shows that levels as low as 10 milligrams of silver carbonate per lamp reduced leachable mercury to below the regulatory limit of 0.2 parts per million per lamp when either a F32T8SCSP35 lamp or F40T12 Cool White WattMiser lamp

(both available from GE Lighting) was mercury dosed at 20 milligrams per lamp. One of the most important advantages of using silver carbonate is the fact that the milligram quantities of silver carbonate required can be easily incorporated within the ~~basin~~ basing cement of the end cap. No separate steps were required to add silver carbonate to the basing cement. TCLP test results using silver carbonate within the basing cement are shown in Figure 1. --